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about 44.2 to about 67.7 wt % SiO_2 , about 10.1 to about 23.4 wt % CaO , about 5.7 to about 13.3 wt % MgO , about 10.3 to about 23.6 wt % Na_2O , about 2.2 to about 6.5 wt % K_2O and about 6.0 wt % P_2O_5 ,

wherein said hydroxyapatite particles are present in the glass/hydroxyapatite admixture in an amount of 1.0 wt % to about 50 wt%.

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12. (once amended) The multilayer article of claim 5, wherein the glass composition in the first layer, the first intermediate layer and the second intermediate layer each comprise about 61.1 wt % SiO_2 , about 12.6 wt % CaO , about 7.2 wt % MgO , about 10.3 wt % Na_2O , about 2.8 wt % K_2O and about 6.0 wt % P_2O_5 and the glass/hydroxyapatite admixture in the first layer comprises 60 wt% glass and 40 wt % hydroxyapatite, and the admixture in the first intermediate layer comprises 80 wt% glass and 20 wt % hydroxyapatite and the admixture in the second layer comprises 60 wt% glass and 40 wt % hydroxyapatite, and the substrate is Ti or Ti6Al4V.

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13. (once amended) A multilayer article comprising, a metal substrate, n intermediate layers, where n is an integer, a first layer comprising an inner and outer surface, said n intermediate layers disposed between the metal substrate and the first layer,

wherein the n intermediate layers and the first layer each independently comprise a glass/hydroxyapatite admixture comprising a glass composition and hydroxyapatite particles (HA),
 said glass composition comprising,
 about 44.2 to about 67.7 wt % SiO_2 , about 10.1 to about 23.4 wt % CaO , about 5.7 to about 13.3 wt % MgO , about 10.3 to about 23.6 wt % Na_2O , about 2.2 to about 6.5 wt % K_2O and about 6.0 wt % P_2O_5 ,
 and wherein said hydroxyapatite particles being present in the glass/hydroxyapatite admixture in an amount of 1.0 wt % to about 50 wt %,

such that the first layer has a hydroxyapatite concentration greater than all layers under it,

each n intermediate layer under the first layer has a hydroxyapatite concentration greater than the n intermediate layer under it,

so there is a gradient of glass/hydroxyapatite admixtures in the multilayered article such that the highest concentration of hydroxyapatite is found in the first layer and the least is found in the n intermediate layer next to the substrate.

14. (once amended) The multilayer article of claim 13,
 wherein the first layer and the n intermediate layers may each comprise a glass mixture that is a mixture of two or more glasses chosen from said glass composition.

19. (once amended) The multilayer article of claim 13,
 wherein $n=2$,

and wherein the glass composition in the first layer and each intermediate layers comprises about 61.1 wt % SiO_2 , about 12.6 wt % CaO , about 7.2 wt % MgO , about 10.3 wt % Na_2O , about 2.8 wt % K_2O and about 6.0 wt % P_2O_5 and the glass/hydroxyapatite admixture in the first layer comprises 60 wt% glass and 40 wt % hydroxyapatite,

and the admixture in the intermediate layer adjoining the first layer comprises 80 wt% glass and 20 wt % hydroxyapatite and the admixture in the intermediate layer next to the substrate comprises 60 wt% glass and 40 wt % hydroxyapatite.

20. (once amended) A multilayer article comprising,

a metal substrate,

n intermediate layers, where n is an integer,

a first layer comprising an inner and outer surface,

said n intermediate layers disposed between the metal substrate and the first layer,

wherein the n intermediate layers and the first layer each independently comprise a glass/hydroxyapatite admixture comprising a glass composition and hydroxyapatite particles (HA),

said glass composition comprising,

about 44.2 to about 67.7 wt % SiO_2 , about 10.1 to about 23.4 wt % CaO , about 5.7 to about 13.3 wt % MgO , about 10.3 to about 23.6 wt % Na_2O , about 2.2 to about 6.5 wt % K_2O and about 6.0 wt % P_2O_5 ,

and wherein said hydroxyapatite particles being present in the glass/hydroxyapatite admixture in an amount of 1.0 wt % to about 50 wt%,

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such that the first layer has a hydroxyapatite concentration greater than all layers under it,
each n intermediate layer under the first layer has a hydroxyapatite concentration greater than the n intermediate layer under it,
so there is a gradient of glass/hydroxyapatite admixtures in the multilayered article such that the highest concentration of hydroxyapatite is found in the first layer and the least is found in the n intermediate layer next to the substrate,
and the glass composition for each layer is chosen such that there such that the first layer has a SiO_2 concentration less than all layers under it,
and each n intermediate layer under the first layer has a SiO_2 concentration less than the n intermediate layer under it,
so there is a gradient of SiO_2 concentration in the admixtures in the multilayered article such that the highest concentration of SiO_2 is found in the n intermediate layer next to the substrate and the least is found in the first layer.

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REMARKS

This amendment and request for reconsideration is filed on November 22, 2002 in response to a first office action, paper no. 5, mailed 05/22/2002. A response was originally due on 08/22/002. This amendment and request for reconsideration is filed with a petition for extension of time under 37 CFR 1.136(a). This response is then due on November 22, 2002. Accordingly, this response is timely filed.

Power of Attorney

Filed herewith is a power of attorney by the assignee of the entire interest and a statement under 37 CFR 3.73(b).

Information Disclosure Statement

Applicants respectfully request the Office to acknowledge the IDS sent May 03, 2002. In a telephone conference with the Examiner, the Examiner indicated that the IDS had not been received. A second IDS is transmitted under separate cover, because of weight restrictions imposed by the US Post Office. Accompanying the IDS are copies of the original paperwork, indicating by a completed certificate of mailing that the IDS was sent on May 3, 2002. Since the IDS was sent prior to a first office action on the merits, Applicants respectfully request consideration of the references cited on the PTO-1449 form.

Claim Status

Claims 1-20 were originally filed in this application. Pending for examination are claims 1-20. Claims 1, 13 and 20 have been amended to reflect that there is always some hydroxyapatite in the glass/hydroxyapatite admixture. Support for this amendment is found in the claims as filed. Claims 1, 13 and 20 have also been amended to reflect that the Na₂O concentration of the glass composition be at least 10.3 wt%. Support for this amendment is found in the specification as filed and at claim 9. Claims 12 and 19 have been amended to reflect that 60 wt% of glass is present in the second layer admixture. Claim 14 has been amended to recite that the glass composition referred to is recited in claim 13. Claim 20 has been amended to correct a spelling error in "concentration". No new matter is added by these amendments, and entry is respectfully requested.

CLAIM REJECTIONS

Claim Rejections- 35 USC § 112

Claims 1, 3, 5-6, 9-10, 13-17 and 20 have been rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention in paper no. 5, paragraph no. 3. The Office Action poses the question, “must hydroxyapatite be present”. In response, Applicants have amended claims 1, 13 and 20 to reflect that at least 1.0 wt% of hydroxyapatite be present. Accordingly, it is respectfully urged that this rejection is overcome and withdrawal of the rejection is requested.

Claims 1-12 have been rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention in paper no. 5, paragraph no. 4. The Office Action alleges that the claims are unclear because claim 1 recites a “multilayer article” but claim 1 further only recites “a first layer”. Applicants respectfully urge that the claim limitation “metal substrate” is a layer of the “multilayer article” and thus the claims have at least two layers. Thus it is urged that this rejection be withdrawn and it is respectfully so requested.

Claims 7 and 14 have been rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention in paper no. 5, paragraph no. 5. The Office Action states that “it is unclear what glass compositions are referred to by the phrase, ‘two or more glasses chosen from the glass composition of claim 1’.” In response Applicants assert that the claims as written are clear. What is meant by the phrase

referenced by the Office Action is this: claim 1 recites a glass composition. The glass composition is claimed in ranges, thus out of the recited ranges, more than one glass composition is possible. Each glass composition possible is one of the “glasses” recited in claims 7 and 14. Thus, claim 7 and 14 call for a mixture of two or more of the glass compositions possible out of the ranges recited in claim 1. Thus, Applicants believe claims 7 and 14 are clear and accordingly respectfully request the rejection be withdrawn.

Claims 12 and 19 have been rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention in paper no. 5, paragraph no. 6. The Office Action asserts that the claims limitation “100 wt% glass and 40 wt% hydroxyapatite” be possible. Applicants have amended claims 12 and 19 to overcome this rejection. Accordingly, withdrawal of the rejection is respectfully requested.

Claim Rejections- 35 USC § 103

Claims 1 and 8 have been rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Maruno et al., U.S. Patent No. 5,077,132 in view of Weissbach, U.S. Patent No. 5,562,733. Applicants believe from the text of the Office Action that this is intended to be Maruno et al. in view of Kasuga et al., and have responded accordingly. yes

Applicants respectfully traverse this rejection. It is respectfully asserted that Applicant’s claims, *as amended* are not obvious over Maruno et al. in view of Kasuga et al. This is because Applicant’s claims now recite that the content of Na₂O present in the glass composition be at least 10.3 wt%. Applicant’s claimed Na₂O content is not taught or fairly suggested by either Kasuga et al. or Maruno et al. Kasuga et al. is relied upon to teach the glass composition in the rejection. Kasuga et al. specifically discloses that the

amount of Na₂O present in his glass composition must be less than 10 wt%, col. 5, lines 11-14. *In fact*, Kasuga et al. teaches away from Applicant's claimed amount when they recite "When the total amount of these optional components [Na₂O] is more than 10%, the amounts of precipitated crystals of apatite and alkaline earth metal silicates...decrease in some cases. Therefore, the total amount of these optional components is restricted to 10% or less", see col. 5, lines 13-20. Because Maruno et al. either alone or in combination with Kasuga et al. does not teach or fairly suggest applicant's invention *as amended*, it is urged that a prima-facie case of obviousness has not been set forth. Accordingly it is respectfully requested that the rejection be withdrawn.

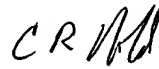
Claims 2-20 have been rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Maruno et al, U.S. Patent No. 5,077,132 in view of Kasuga et al. and further in view of Maruno et al. In response, Applicants assert that because the *amended claims* 1 and 8 are patentable over Maruno et al. in view of Kasuga et al. for the reasons stated above, claims dependent therefrom are also patentable. Claims 13 and 20, both independent claims are also patentable over Maruno et al. and Kasuga et al., either singularly or in combination because the Na₂O concentration in Applicant's *amended claims* is not taught or fairly suggested by the prior art references in combination.

Having overcome all rejections, Applicants respectfully requests that a timely Notice of Allowance be issued in this application. If a telephone conversation will expedite the prosecution of this application, the Examiner is kindly invited to call Applicant's representative at the telephone number listed below.

All fees believed due have been submitted. If Applicant is wrong in this assumption, the PTO is authorized to charge any deficiency to Applicant's account number 120690. The PTO is not authorized to charge the issue fee to this account.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."** Also attached is a complete set of claims, November 22, 2002, for the convenience of the Examiner.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'C R Nold'.

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